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Use of tide pools as a spawning site by the bocon toadfish *Amphichthys cryptocentrus* (Batrachoidiformes: Batrachoididae), state of Maranhão, Brazil

by

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Résumé. – L'utilisation de bassins de marée comme site de frai par *Amphichthys cryptocentrus* (Batrachoidiformes: Batrachoididae), État du Maranhão, Brésil.

Cette note rapporte le premier signalement de l'utilisation de bassins de marée sur les plages de l'état du Maranhão au Brésil, comme site de frai et de reproduction pour l'espèce *Amphichthys cryptocentrus*.

Key words. – Batrachoididae - *Amphichthys cryptocentrus* - Brazil coast - Reproduction site.

Amphichthys cryptocentrus (Valenciennes, 1837) is one of the 78 species belonging to the family Batrachoididae, which is the only family of the order Batrachoidiformes (Nelson, 2006; Greenfield *et al.*, 2008). According to Cervigón (1991), the family Batrachoididae encompasses fishes with coastal, benthic habits and active ambush predation, feeding mainly on mollusks, crustaceans and other fishes, with a number of species known for their voracity. They rarely inhabit brackish water and few species are confined to freshwater environments (Collette, 2002).

Amphichthys cryptocentrus is common along the coast of Brazil and differs from other species by not having scales or axial pores behind the pectoral fin, but has a branched tentacle in the supra-orbital region, a dorsal fin with 28-29 rays, three dorsal spines and two opercular spines not associated with venom glands (Collette, 2002; Greenfield *et al.*, 2008). Its color pattern consists of a darker dorsum than belly, which is generally pale, and a yellowish brown body with diffuse spots. However, orange combinations may be seen on the head or it may be nearly uniformly reddish brown and the fins may have light oblique stripes (Collette, 2002).

Although 13 species of the family Batrachoididae occur in Brazil (Menezes *et al.*, 2003), most studies (e.g. Almeida *et al.*, 2006; Piorski *et al.*, 2009) only address those that are economically important to fishing activities, such as *Batrachoides surinamensis* (Bloch & Schneider, 1801) or the venomous *Thalassophryne nattereri* Steindachner, 1876. Unlike some species of the family Batrachoididae that are consumed by a portion of the population (Collette, 2002) or are of medical-pharmacological interest, there is no information on the biology and ecology of the bocon toadfish *A. cryptocentrus* on the northern coast of Brazil.

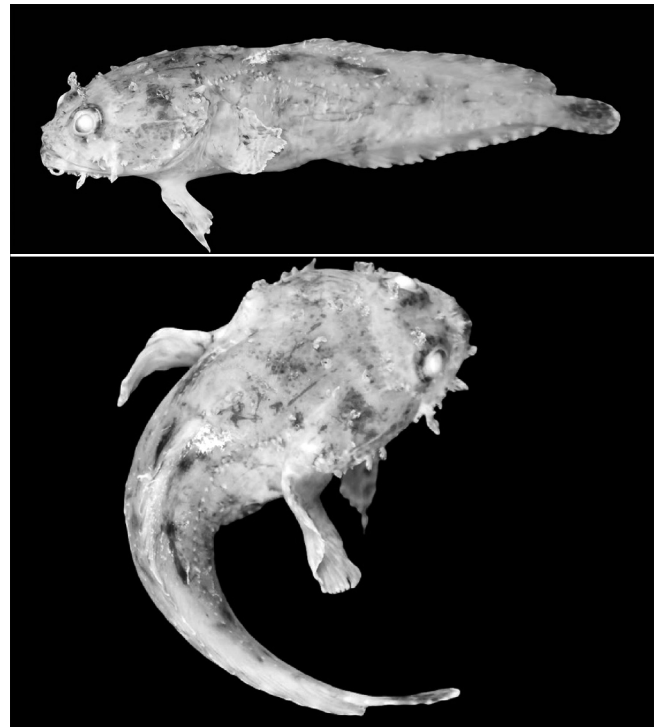


Figure 1. - Adult male *Amphichthys cryptocentrus* (12.3 cm TL) caught in a tide pool on Panaquatira Beach, São José de Ribamar, state of Maranhão, Brazil. Photo: N.M. Piorski.

On 20 July 2011, during the sampling of fish fauna in tide pools, use of fragments of ferruginous sandstone for egg laying and parental care by a bocon toadfish was observed. The specimens were collected, stored in a 10% formalin solution and subsequently transferred to a 70% ethanol solution for preservation. The samples were sent to the Ichthyology Laboratory, where they were photographed, measured, weighed, identified and deposited in the Fish Collection of the Department of Oceanography and Limnology of the Universidade Federal do Maranhão (Brazil), Number in collection: CPDOL 11726; CPDOL 11727.

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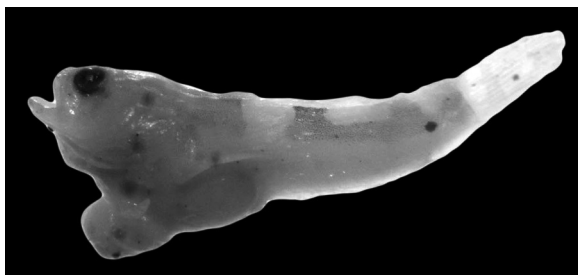


Figure 2. - *Amphychthys cryptocentrus* larva (1.1 cm TL) caught in a tide pool on Panaquatira Beach, São José de Ribamar, State of Maranhão, Brazil. Photo: N.M. Piorski

The specimens collected were identified as a male *A. cryptocentrus* (Fig. 1), 12.3 cm in total length and 38.1 g, and 75 larvae (Fig. 2) with a mean length of 1.1 cm and mean weight of 0.03 g. The larvae adhered to the same rock in the tide pool and were under the protection of a single adult, which allowed the identification of parental care.

Observations of this nature are described by Figueiredo and Menezes (1978), who report that species of the family Batrachoididae exhibit parental care until hatching. Hoffman and Robertson (1983) report parental care of *A. cryptocentrus* juveniles by adults on more than one occasion per year, which demonstrates mating at different times of the year.

According to Carvalho-Filho (1999), these fish live in the coastal zone at depths as much as 200 meters. During reproduction, the bocon toadfish moves closer to the shore to deposit an adherent mass of a small number of large eggs on consolidated substrates. The male defends the offspring from predation and from becoming covered with sand. Demersal spawning is a reproductive strategy of species with low fertility and egg production, for which parental care is essential to reproductive success (Miller and Kendall, 2009).

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